E INSTRUMENTS

Supplied with Calibration certificate

Multi-Functional Anemometer

VT 200

Table of contents

I – Technical specifications....4

Technical features....4
Specifications....4

II – Introduction....5

Description....5
Connections....6

III – Browsing....7

IV – Menus....8

Probe menu....8

Using wire probes and modules....8
Using wireless probes....8

Airflow menu....8

Area....8

Duct type....8
Sizes....8
K2 factor....8
Units....9

Using Hotwire....9
Air velocity menu....9

Hold - Min/Max....9
Average....9

Point / point average....9
Automatic average....9
Automatic point/point average....9

Configuration....10

Thermocouple type....10
Display....10
Units....10

Recording....10
Parameters....12

Language....12
Date / hour....12
Beep....12
Extinction....12
Contrast....12
Backlit....12
Key locking....12
Code....12

Downloading data....12

V – General Information....13

Info menu....13
Maintenance....13
Warranty....13

Technical features

Sensing elements

Hot wire :
Air velocity : thermistance with a negative temperature coefficient.
Ambient temperature : Pt100 1/3 Din.

Ø 70 and 100 mm vane probe : Hall effect sensor
Ambient temperature : Pt100 class A.

Ø 14 mm vane probe : Proximity sensor
Ambient temperature : Pt100 class A.

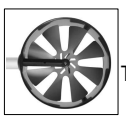
Thermocouple prones : K, J and T type class 1

Smart-plus Pt100 probes : Pt100 class 1/3 Din

VT200 connections (See P6)

Display.....Graphic display 128x128 pixels
Dim. 50 x 54 mm, blue blacklit, Display of 6 measurements (including 4 simultaneously)
Housing.....IP54, ABS shock-proof
Keypad.....Metal-coated, 5 keys, 1 joystick
Conformity.....Electromagnetical compatibility (NF EN 61326-1 norm)
Power supply.....4 alcaline batteries 1,5V LR6
Operating environment...Neutral gas
Operating temperature..from 0 to 50°C
Storage temperature.....from -20 to +80°C
Auto shut-off.....adjustable from 0 to 120 min
Weight.....12 oz (380g)
Languages.....English, French

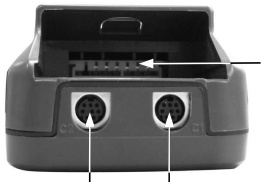
Specifications

	Measuring units	Measuring range	Accuracy*	Resolutions
CURRENT/VOLTAGE				
	V, mA	From 0 to 2.5 V From 0 to 10 V From 0 to 4/20 mA	±2mV ±10mV ±0.01mA	0.001 V 0.01 V 0.01 mA
THERMOCOUPLE (See related datasheet)				
+	°C, °F	K : From -200 to 1,300°C J : From -100 to 750°C T : From -200 to 400°C	±1.1°C or ±0.4% Reading value** ±0.8°C or ±0.4% Reading value** ±0.5°C or ±0.4% Reading value**	0.1 °C 0.1 °C 0.1 °C
HOTWIRE- Standard and telescopic -				
Air velocity Temperature AirFlow	m/s, fpm, Km/h °C, °F m^3/h, cfm, l/s, m^3/s	From 0.15 to 3 m/s From 3.1 to 30 m/s From -20 to +80°C From 0 to 99,999 m^3/h	±3% of reading ±0.03 m/s ±3% of reading ±0.1 m/s ±0.3% of reading ±0,25°C ±3% of reading ±0.03*area (cm2)	0.01 m/s 0.1 m/s 0.1 °C 1 m^3/h
Ø 100 mm VANE PROBE				
 Air velocity Temperature Airflow	**m/s, fpm, Km/h** °C, °F m^3/h, cfm, l/s, m^3/s	From 0.25 to 3 m/s From 3.1 to 35 m/s From -20 to +80°C From 0 to 99,999 m^3/h	±3% of reading ±0.1m/s ±1% of reading ±0.3m/s ±0.4% of reading ±0.3°C ±3% of reading ±0.03*area(cm2)	0.01 m/s 0.1 m/s 0.1 °C 1 m^3/h
Ø 70 mm VANE PROBE				
Air velocity Temperature Airflow	m/s, fpm, Km/h °C, °F m^3/h, cfm, l/s, m^3/s	From 0.3 to 3 m/s From 3.1 to 35 m/s From -20 to +80°C From 0 to 99,999 m^3/h	±3% of reading ±0.1m/s ±1% of reading ±0.3m/s ±0.4% of reading ±0.3°C ±3% of reading ±0.03*area(cm2)	0.1 m/s 0.1 °C 1 m^3/h
Ø 14 mm VANE PROBE				
Air velocity Temperature Airflow	m/s, fpm, Km/h °C, °F m^3/h, cfm, l/s, m^3/s	From 0.8 to 3 m/s From 3.1 to 25 m/s From -20 to +80°C From 0 to 99,999 m^3/h	±3% of reading ±0.1m/s ±1% of reading ±0.3m/s ±0.4% of reading ±0.3°C ±3% of reading ±0.03*area(cm2)	0.1 m/s 0.1 °C 1 m^3/h
Wire or wireless Pt100 probes (See related datasheet)				
	°C, °F	From -50 to +250°C (according to reference)	±0.3% of reading ±0.25°C (according to reference)	0.01 °C

*All accuracies indicated in this document were stated in laboratory conditions and can be guaranteed for measurements carried out in the same conditions, or carried out with required compensation.
**The accuracy is expressed either by a deviation in °C, or by a percentage of the value concerned. Only the bigger value is considered.

Description

Top view



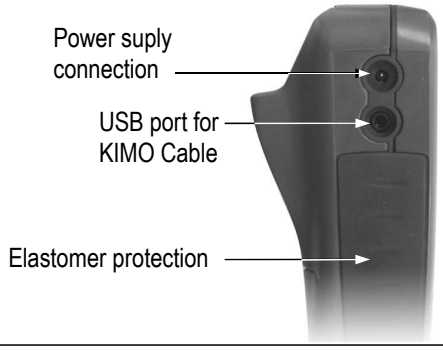
Module connections

mini-Din C2 connector

mini-Din C1 connector

Graphic display

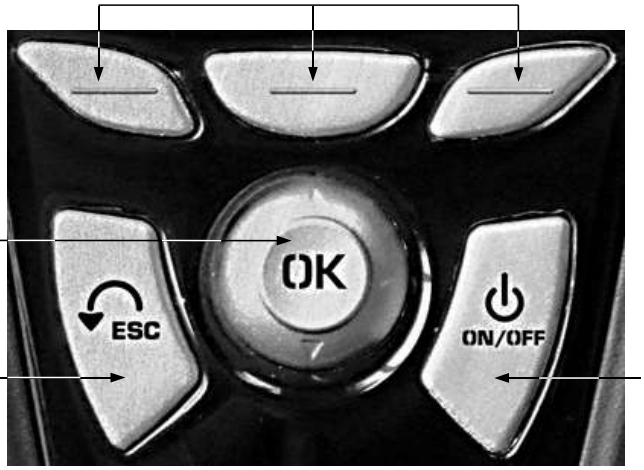
Side view



Keypad

Access keys for circular menu

Browsing joystick :
- 4 directions
- Validation



Escape key

On/Off key

Connections

Interchangeable measurement modules

Interchangeable modules with Smart-plus system are automatically recognized when connected to the instrument.

1. Current / voltage module

It allows current or voltage measurements on **V/A1** or **VA/2** channels with current/voltage input cables or ammeter clamps.

2. Thermocouple module

It allows thermocouple temperature measurement on **Tc1, Tc2, Tc3** and **Tc4** channels with type **K, J** or **T** with wire thermocouple probes equiped with a miniature male connector.

Wire probes with Smart-plus system

Wire probes with Smart-plus system are automatically recognized when connected to the instrument.

mini-Din **C2** connector

mini-Din **C1** connector

Probes are connected on min-DIN connectors **C1** and / or **C2**

Secured Mini-Din Connector

Non-exhaustive list of probes

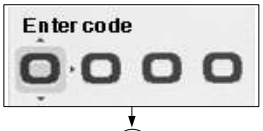
Wireless probe/instrument communication

Wireless communication between probe and instrument with automatic recognition after power-up.

Vane probes and PT100 probes are displayed on **Vit, Tr1** or **Tr2** channels followed by wireless communication Reco

Wireless probes shall be located near the instrument for initial recognition. Connection between VT200 and wireless probes must be established. See submenu "Wireless probes" p 8.

Power-up



Enter key code with directional pad.
(if the locking is activated)
◄ ► and ▲ ▼

OK

Homepage display

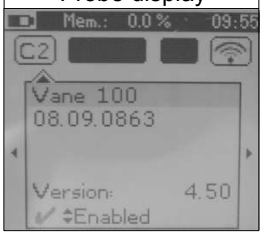
Infos ↔ Probes ↔ Params

Select a sub menu with access keys
or with arrow keys ◄ ►

OK

Probe connection

Probe display



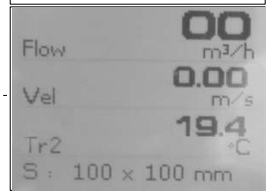
Select a connection with right and left keys ◄ ►
Connections can be activated or deactivated with ▲ or ▼

Infos ↔ Measure ↔ Params

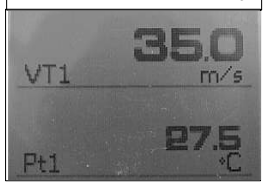
Select a sub menu with access keys

Measurement

Airflow measurement display



Air velocity measurement display



Return to previous screen

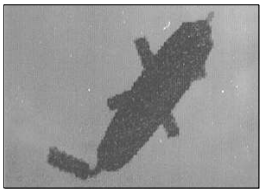
Select sub menu with arrows keys
◄ ► or access keys

Probe ↔ Rec. ↔ Hold ↔ Area ↔ Avg.
Alarms ↔ Params ↔ Veloci. ↔ Config

Probe ↔ Hold ↔ Avg. ↔ Config
Rec. ↔ Alarms ↔ Params ↔ Airflow

OK

Communication interrupted



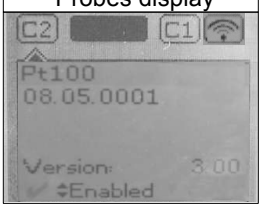
Check probes connection

Probe menu

1. Using wire probes and modules

Wire probes and modules with Smart-plus system are automatically recognized from first connection.
The "**Probe**" menu only appears when probes or module are connected. This menu allows to view probe information plugged to **C2, Module, C1** or **wireless connections**.
(See « Connections » p 6 for more information about connections).

Probes display



Infos ↔ Measure ↔ Params

Available information are :

• Sensor type, Serial number, Date of last calibration or adjustement, Probes Status (enabled ou disabled).
On enabled mode, the probe is connected, the measurement is carried out and the value is displayed.
On disabled mode, the probe is connected, the measurement is not carried out and the value is not displayed.

2. Using wireless communication

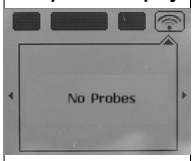
A- Add a wireless probe

A1. Go to probe menu by pressing "**Probe**" access key.
A2. With arrow keys ◄ and ► , go to "**RF probes**" display.
A3. Select **New** with access key.
A4. Power up the probe and press multifunction button until LED blinks. Once the probe is recognized, information appears.
Left button ◄ allows to return to the wireless probes display and to access all wireless probes already recognized by the instrument. With access keys, it is possible to delete **Del** a wireless probe.

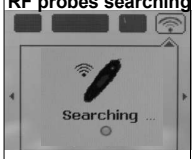
B- Select a wireless probe already created.

B1. Power up the wireless probe (short press on Multifunction button).
B2. Go to "**Probe**" menu.
B3. With arrows keys ◄ and ► , go to "**RF probes**" display. All the wireless probes already recognized appear.
B4. Select the suitable wireless probe with ▲ or ▼.
B5. Go to probe informations using arrow key ►.
B6. Enable the wireless probe with arrows keys ▲ and ▼ and confirm with **OK** .

RF probes display



RF probes searching



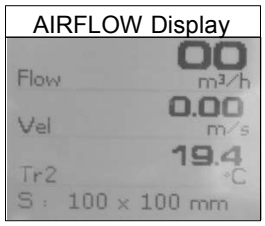
RF probes detected

RF probes display

AIRFLOW menu

Access **Airflow** function by means of Air flow key. With **Airflow** function, you can access to following sub-functions Hold, Area, Configuration, Parameters, Average, Alarms et Recording. For using sub-functions Hold, Average, Alarms, Recording and Configuration see chapter **Air velocity menu.**

AIRFLOW Display



Area

• ***Duct type***

To select vent **Type** press **OK** or ►.
Select **Lx W** or **Diam** or **K 25** with arrow buttons ▲ and ▼. Confirm with **OK**.

Probe ↔ Rec. ↔ Hold ↔ Area ↔ Avg.
Alarms ↔ Params ↔ Veloci. ↔ Config

• ***Sizes***

Press ► or **OK** to enter into **sizes** sub function. You can choose an air vent already registered by selecting it with arrow keys ▲ and ▼ . Confirm with **OK** or ►. This air vent can be modified by selecting it with arrows keys ▲ and ▼, then Confirm with **OK** or ►. Select **Modify** with **OK** or ►. Enter sizes by means of arrow keys ▲ and ▼ . Confirm with **OK** or ►.

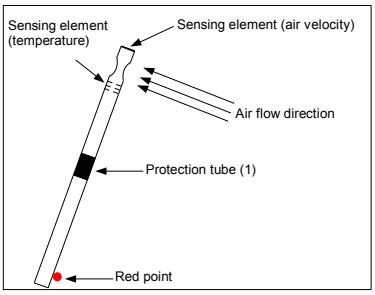
• ***K2 factor***

Press ► or **OK** to enter into the **K2 factor** sub function. Select respectively **ON** or **OFF** with ▲ and ▼ in order to enable or disable this function. Confirm with **OK** .

- ***Units***

To select the unit press **OK** or ▶.
Select **mm** or **in** with arrow buttons ▲ and ▼ . Confirm with **OK**.

Using a hotwire

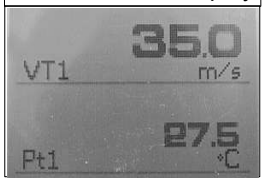


1. Connect the hotwire probe to VT 200. Probe menu appears.
2. Slide down protection tube (1).
3.The probe must be perpendicular to airflow : the red point at the bottom of the probe must face airflow.
4. Press **OK** to enter in the **Measurement** menu, the air velocity and temperature values are displayed.
5. With arrow keys and go to « **Config** » and press **OK**.
6. Go to « **Air pressure** » then press **OK**.
7. Enter air pressure.
8. Press« **Valid.** » then « **Esc** » to go back to measurement mode.

AIR VELOCITY menu

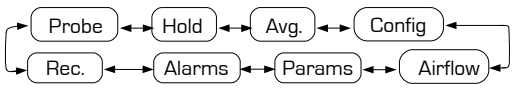
Access **Airflow** function by means of (Veloci.) key. With **Velocity** function, you can access to following sub-functions Hold, Area, Configuration, Parameters, Average, Alarms et Recording.

AIR VELOCITY display



Hold - Min./Max.

Press 1x in order to select **HOLD** function : measurement holding on display.
Press 2x in order to select **Min-Max** function : display of minimum and maximum values.
Press 3x : back to the continuous measurement.



Average

- ***Point / point average***

This function allows to calculate the average value of various points that you can select.
Numbers of selected points and **parameter** for which calculation is carried out, are displayed
For adding a new measuring point to this calculation, press **OK** to confirm.
If you click on **average icon**, max. and min. values, standard deviation, average of each parameter and numbers of measuring points will be displayed. If you want to see all values, select **Visu.** and scroll with ▲ and ▼.

- ***Automatic average***

This function allows to calculate an average value that the device measured in an interval chosen time.
Timer is displayed. Select **Start** with access key for launching measurement.
If you click on **average icon**, max. and min. values, standard deviation, average of each channel and time chosen will be displayed.

- ***Automatic point/point average***

This function allows to calculate the average value of various points, calculated themselves on a duration beforehand defined.
You must enter duration : click on the **Period** icon. Select **minutes** or **seconds** with arrow buttons ▲ and ▼ .
Scroll digits with▲ and ▼. Confirm with **OK**. The numbers of points is displayed. Press **Ok** for launching measurement.
If you click on **average** icon, max. and min. values, standard deviation, average of each channel and numbers of measuring points will be displayed.
You can view each measuring points if you click on **Visu.**

Configuration

Configuration sub-function allows to: :

If you use thermocouple probes, you must enter type into the Configuration sub-function.

• *Select thermocouple*
Click on **OK** or ▶ to enter into sub function : a list of thermocouple available (K, J or T type) appears .
Select type with ▲ and ▼. Confirm with **OK**.

• *Select display*
Click on **OK** or ▶ to enter into sub function. Select channel required with arrow keys ▲ and ▼ and confirm with **OK**. With ▲ and ▼. Select respectively **ON** or **OFF** with ▲ and ▼ in order to enable or disable this function. Confirm with **OK** .

• *Select units*
Click on **OK** or ▶ to enter into sub function : a list of units available appears. For each channel, select unit required with ▲ and ▼.
Confirm with **OK**.
Click on **Esc** to return to previous screen.

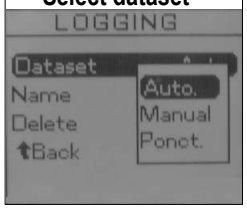
Recording

The Recording menu allows a measurement dataset. You can choose between a planned or a continuous dataset.
Memory capacity of the instrument is up to **8,000** points or **50** datasets.

1. Create or launch a continuous dataset

A continuous dataset can be carried out using VT200 and is composed of several dated measuring points. The operator can choose an automatic or a manual dataset, with an instant value or an average. This datasets can't be set using Datalogger-10 Software.

Select dataset

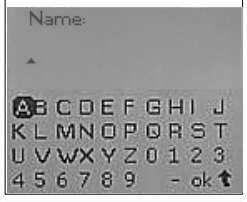


1.1 Manual dataset

A **manual dataset** is composed of measuring points selected by the operator.

a. Click on **OK** or ▶ to enter into sub function.
b. Select **Manual** with ▲ and ▼. Confirm wih **OK**.
c. Select **Name** with ▲ and ▼. Confirm wih **OK** or ▶. Enter dataset name with arrow keys ◀ ▶ and ▲ ▼. Confirm wih **OK**.
d. For measurement launching, click on **OK** with the access key. The number of points selected and the parameter are displayed.
e. To save your dataset click on **Save** with the access key.

Enter name



Manual dataset

1.2 Automatic dataset

An **automatic dataset** is composed of measuring points with interval of time.
a. Click on **OK** or ▶ to enter sub function.
b. Select **Auto.** with ▲ and ▼. Confirm wih **OK**.
c. Select **Name** with ▲ and ▼. Confirm wih **OK** or ▶. Enter dataset name with the arrow keys ◀ ▶ and ▲ ▼.
Confirm wih **OK**.
d. Enter dataset time and interval of time between 2 measurements by selecting **Period** with access key. Select **Duration** or **Interval** with ▲ and ▼. Confirm wih **OK**. Enter minutes and seconds with arrow keys▲ and ▼ (from 1 minute to 24 hours for the duration and from 5 seconds to 10 minutes for the interval). Confirm with **OK**.
e. Select **Start** for dataset launching.

Automatic dataset

2. Launch a planned dataset

A planned dataset is composed of several locations. For each location, the operator can enter a theorical value and a tolerance for the parameter to be controlled. Planification must be made via the software.

a. Click on **OK** or ▶ to enter into sub function.
b. Select **Planned** with ▲ and ▼. Confirm wih **OK**.
c. Choose dataset name with ▲ and ▼. Confirm wih **OK**.
d. Select the location with ▲ and ▼. Confirm wih **OK**.

3. Preview of tables of points of datasets

You can display tables of points of datasets performed on the device.

a. Go to **Recording** menu.
b. Select **Display**. Click on **OK** to validate.
c. Select **dataset name** with arrow keys ▲ et ▼. Click on **OK** to validate.
Summary screen of selected dataset is displayed. From this screen, you can :
• Select other dataset using arrow keys ◀ and ▶.
• Display data of other channels using arrow keys ▲ and ▼.

Dataset summary

d. Click on **Mesure** to display values table of selected dataset.
From this screen you can :
• Browse values table of points of the same channel pressing **Prev.** or **Next.**
• Change of channel with arrow keys ◀ and ▶ .
• Back to dataset summary screen pressing **Visu.**

Dataset table

4. Delete all datasets

Select **Delete** with ▲ and ▼. Confirm wih **OK**.

Parameters

- ***Language***

Click on **OK** or ▶ to enter and a list of languages available appears.
Select language with arrow keys ▲ and ▼ and Confirm wih **OK**.

- ***Date / Time***

Click on **OK** or ▶ to enter into sub function. Enter the day with ▲ and ▼ then move to the next digit with ▶. Repeat this operation for the month, year, hour and minute. Confirm wih **OK**.

- ***Beep***

This sub-function allows to enable or disable the keypad beep. Click on **OK** or ▶ to enter into the sub function. Select respectively **ON** or **OFF** with ▲ and ▼ in order to enable or disable the beep.
Confirm wih **OK**.

- ***Extinction***

This sub-function allows to enable the automatic shut-off and to select the delay in minute. Click on **OK** or ▶ to enter into the sub function. Select, with ▲ and ▼, **OFF** in order to disable the automatic shut-off or enter the delay (from 15 to 120 minutes).
Confirm wih **OK**.

- ***RF logging***

This sub-function allows to enable or disable the **RF Logging**. Click on **OK** or ▶ to enter into the sub function. Select respectively **ON** or **OFF** with ▲ and ▼ in order to enable or disable this function.
Confirm wih **OK**.

- ***Contrast***

This sub-function allows to modify the contrast. Click on **OK** or ▶ to enter. Select your contrast level (from 0 to 9) with ▲ and ▼.
Confirm wih **OK**.

- ***Backlit***

This sub-function allows to modify the backlit. Click on OK or ▶ to enter. Select your backlit level (from 0 to 9 or **AUTO**) with ▲ and ▼.
Confirm wih **OK**.

If you select AUTO, the VT200 adjuts automatically the backlit according to the room brightness.

- ***Key locking***

This sub-function allows to enable or disable the **key lock**. Click on **OK** or ▶ to enter into sub function. Select respectively **ON** or **OFF** with ▲ and ▼ in order to enable or disable this function.
Confirm wih **OK**.
If the locking is enabled, the code menu appears

- ***Code***

This sub-function allows to enter the **security code**. Click on **OK** or ▶ and the code appears. Enter the first digit of the code with ▲ and ▼ then move to the next one with ▶**.** Confirm wih **OK**.

Downloading data

See DataLogger-10 user manual chapter **III – Read device** page 6.

Info menu

This menu allows to view the serial number of instrument and firmware version.

Battery

When battery indicator flashes it is recommended to change the batteries:

1. Remove the front part at the back of the instrument.
2. Remove batteries
3. Insert new batteries (AA-LR6 1,5V) in accordance with proprer polarity drew inside the housing.
4. Replace the front.

Maintenance

E Instruments International performs calibration, adjustment and maintenance of all your instruments to guarantee a constant level of quality of your measurements. In regards of Quality insurance norms, we recommend that the instruments are checked once a year.

Warranty

E Instruments have a 1-year guarantee for any manufacturing defect (return to our After-Sales Service Department for appraisal).

E Instruments International LLC
172 Middletown Blvd - Suite B201
Langhorne, PA 19047
Tel.: 215 750 1212
Fax: 215 750 1399
E-mail: Info@E-Inst.com
Web: www.E-Inst.com

Distributed by:
Temperature & Process Instruments, Inc.
1767 Central Park Ave.
Suite 112
Yonkers, NY 10703
Phone: 914-673-0333
Web Site: www.tnp-instruments.com